

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

**Claims 1-23 (cancelled).**

24. (new) A method of manufacturing a calcium fluoride crystal, said method comprising:
- mixing a raw material of calcium fluoride and a scavenger at a predetermined proportion to obtain a first mixture;
  - fusing the first mixture in a crucible to refine the raw material of calcium fluoride;
  - mixing the refined calcium fluoride and a scavenger at a predetermined proportion, to obtain a second mixture; and
  - fusing the second mixture in a crucible to cause growth of a calcium fluoride crystal;
- wherein said method includes a baking process for at least one of the first and second mixtures to be performed before it is or they are fused in the crucible, and said baking process is carried out as a separate process before the refining process and the growth process, by using a porous baking crucible different from the refining crucible and the growth crucible.
25. (new) The method of manufacturing a calcium fluoride crystal according to claim 24, wherein the first mixture contains a scavenger of 0.001 to 0.1 mol%.

26. (new) The method of manufacturing a calcium fluoride crystal according to claim 24, wherein the first mixture contains a scavenger of 0.0005 to 0.05 mol%.
27. (new) The method of manufacturing a calcium fluoride crystal according to claim 24, wherein the transition density in the calcium fluoride crystal is not greater than  $1 \times 10^5 / \text{cm}^2$ , and wherein dispersion of the transition density is not greater than  $\pm 5 \times 10^4 / \text{cm}^2$ .
28. (new) The method of manufacturing a calcium fluoride crystal according to claim 24, wherein in said baking process, the mixture is heated in a vacuum ambience or a reduced pressure ambience.
29. (new) The method of manufacturing a calcium fluoride crystal according to claim 24, wherein in said baking process, the mixture is heated in a gas-flow ambience in which a gas flows so as to promote removal of a substance adhered to the mixture.